



**BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF: ) GPA Docket 25-06  
)  
GUAM POWER AUTHORITY'S )  
PERFORMANCE MANAGEMENT ) **ALJ REPORT**  
CONTRACT FOR COMBUSTION )  
TURBINE POWER PLANTS )  
\_\_\_\_\_ )

**INTRODUCTION**

This matter comes before the Guam Public Utilities Commission ["PUC"] for review and approval of the Guam Power Authority's ["GPA"] Petition to solicit for a Performance Management Contract (PMC) for GPA's Combustion Turbine (CT) Power Plants.<sup>1</sup>

**BACKGROUND**

Since March, 2016, GPA has utilized a PMC for the management, operations, and maintenance of the Dededo, Macheche and Yigo CT plants.<sup>2</sup> On January 25, 2016, the PUC approved an Award of a Performance Management Contract for the combustion turbine power plants, to Taiwan Electrical and Mechanical Engineering Services ["TEMES"] for management, operation, and maintenance.<sup>3</sup> At that time, faced with the prior explosion of the Cabras 3 & 4 plants, and the loss of 79MW in generation capacity, the PUC found that it was "critical to achieving sufficient system capacity that the availability of the Dededo CTs, and upgraded capacity for the Macheche and Yigo CTs,

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<sup>1</sup> GPA Petition for Request to Approve a Performance Management Contract for the Combustion Turbine Power Plants, GPA Docket 25-06, filed January 7, 2025.

<sup>2</sup> Id. at p. 1.

<sup>3</sup> PUC Order, GPA Docket 15-22, GPA's Procurement of a PMC for the Combustion Turbine Power Plants, dated January 25, 2016, at p. 1.

be ensured.”<sup>4</sup> Without the availability of the CTs, GPA would simply not be able to provide the total desired generation capacity.<sup>5</sup>

The original TEMES PMC Contract was for a 5-year base term.<sup>6</sup> In GPA Docket 21-03, on November 30, 2020, the PUC approved a 5-year extension of the TEMES PMC Contract.<sup>7</sup> The present TEMES PMC will expire in February 2026. GPA is filing its Petition now because it will require nearly one year to award the contract, including regulatory approvals and a mobilization period.<sup>8</sup>

The proposed Invitation for Bids will also include the Piti 7 CT within the scope of the PMC.<sup>9</sup> GPA has stated that “Piti 7 provides critical generation capacity until the Ukudu Power Plant is commissioned and will provide the necessary reserve capacity going forward.”<sup>10</sup>

In GPA Resolution No. FY2025-01, the Guam Consolidated Commission on Utilities authorized the solicitation of a Performance Management Contract for GPA’s Combustion Turbine Power Plants.<sup>11</sup> The CCU found that “under the PMC contractor [i.e. TEMES] the CTs were able to perform maintenance and execute projects to maintain reliability and availability to support the Island Wide Power System (IWPS) most especially after the loss of Cabras 3 & 4 in August 2015, during the Cabras boiler

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<sup>4</sup> Id. at p. 2.

<sup>5</sup> Id. at p. 3.

<sup>6</sup> GPA Petition at p. 2.

<sup>7</sup> PUC Order, GPA Docket 21-03, dated November 30, 2020, at p. 1.

<sup>8</sup> GPA Petition at p. 3.

<sup>9</sup> GPA Petition at Attachment 1(Contract Highlights & Comparison).

<sup>10</sup> PUC Order, GPA Docket 24-21, GPA’s Petition to Approve the Contract with TEMES Inc. to Overhaul Piti 7, dated August 29, 2024, at p. 1.

<sup>11</sup> Guam Consolidated Commission on Utilities GPA Resolution No. FY2025-01, Relative to Authorizing the Solicitation of a Performance Management Contract for GPA’s Combustion Turbine Power Plants, adopted and approved on November 26, 2024.

incident in February 2022, during the extended outages of Piti 8 & 9 for the fuel oil conversion projects in 2022 and the recent capacity shortfalls post Typhoon Mawar and early 2024...".<sup>12</sup>

GPA "plans to solicit for a new Performance Management Contract for the continued Management, Operation and Maintenance of GPA's Combustion Turbine (CT) Power Plants for a 3-year base term and an optional two 1-year extensions in order to meet the increasing power demands and provide the reserve capacity for planned and forced generation outages...".<sup>13</sup>

### ANALYSIS

#### A. GPA HAS JUSTIFIED THE NEED TO SOLICIT A PERFORMANCE MANAGEMENT CONTRACTOR FOR THE CONTINUED MANAGEMENT, OPERATION, AND MAINTENANCE OF THE COMBUSTION TURBINE POWER PLANTS.

In GPA Dockets 15-22 and 21-03, the PUC recognized that the retention of a Performance Management Contractor for the Combustion Turbine Power Plants is beneficial and appropriate. The retention of a PMC is critical for ensuring that the CTs achieve sufficient system capacity and further upgraded capacity. Without the availability of these CTs, GPA would simply not be able to provide the total desired generation capacity.<sup>14</sup>

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<sup>12</sup> Id. at p. 1.

<sup>13</sup> Id. at pgs. 1-2.

<sup>14</sup> PUC Order, GPA Docket 21-03, dated November 30, 2020, at p. 4.

Soliciting a PMC for the Combustion Turbine Plants is consistent with GPA's long-standing policy of seeking private contractors for the management of GPA's generation assets.

The Dededo, Macheche, and Yigo CT Power Plants in total make up the 89MW of total generating capacity of the peaking units for GPA's Island Wide Power System.<sup>15</sup> The Piti 7 Plant provides up to 40MW.<sup>16</sup> The generation capacity of the CTs must be maintained, as GPA believes that upcoming military, commercial and local government projects could increase loads by over 100MW in the next 5 years.<sup>17</sup> In GPA Docket 24-21, dated August 29, 2024, the PUC recognized possible additions to GPA's load growth by 50MW for military load requirements over the next 10 years and private and government projects which could increase load by 36MW.<sup>18</sup> The PUC also recognized that Piti 7, which has a full capacity of 40MW, is only producing 23MW at the present time.<sup>19</sup>

After the commissioning of the Ukudu Power Plant and the retirement of Cabras 1 & 2 Power Plants, the new Phase IV renewable projects with energy shifting are not expected to be commissioned earlier than 2028.<sup>20</sup> GPA anticipates that the CTs operations will provide peak support or production at night during peak demand periods and during baseload unit outages, as well as during low solar production

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<sup>15</sup> GPA Petition at p. 142.

<sup>16</sup> Id. at p. 146.

<sup>17</sup> Guam Consolidated Commission on Utilities GPA Resolution No. FY2025-01, Relative to Authorizing the Solicitation of a Performance Management Contract for GPA's Combustion Turbine Power Plants, adopted and approved on November 26, 2024, at p. 2.

<sup>18</sup> PUC Order, Approval for TEMES Inc. Contract to Overhaul Piti 7, GPA Docket 24-21, dated August 29, 2024, at p. 6.

<sup>19</sup> Id.

<sup>20</sup> Id.

periods during cloudy or rainy days.<sup>21</sup> In addition, the Dededo CT has provided direct and uninterrupted service to the Anderson Air Force Base during Typhoon Mawar via an underground transmission line from the hardened CT facility to AAFB, which allowed for a faster recovery post-typhoon because the system had not completely blacked out.”<sup>22</sup>

GPA’s Petition supports the continued retention of a Performance Management Contractor to maintain the load capacity and reliability of the Combustion Turbines. The PMC has repaired the CTs and brought them to an improved operational status. The CTs have provided reliable power to the IWPS.

**B. THE FORM OF THE PROPOSED PMC IN THE SOLICITATION HAS BEEN PREVIOUSLY APPROVED BY THE PUC.**

In the instant Petition, GPA has attached a draft PMC Contract. GPA only seeks authorization to issue its solicitation for a new PMC contract for the period after February 2026. The proposed contract form is similar to that which GPA and TEMES have used over the past 9-year period. The contract contains standard provisions for the protection of GPA and its ratepayers, such as bid and performance bond requirements, insurance, indemnification clause, termination for cause or convenience, performance guarantees, and overall responsibility for management, operations and maintenance of the Combustion Turbines.

**C. THE COST FOR THE PROPOSED PMC CONTRACT IS CONSISTENT WITH THAT PREVIOUSLY CHARGED IN PRIOR YEARS OF THE PMC CONTRACT.**

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<sup>21</sup> GPA Petition at p. 2.

<sup>22</sup> Id.

The estimated cost for the draft PMC contract for the 3-year period will be in the range of \$5M, which includes over \$2.4M for fixed management fees and \$2.6M for reimbursable O & M costs.<sup>23</sup> It is also anticipated that Capital Improvement Project costs could exceed \$6M over the 3-year base term, based on historical cost.<sup>24</sup>

The cost for the first 5 years of the PMC contract with TEMES was roughly \$5.9M (fixed management fees/routine O & M). The cost for the 5-year PMC extension was estimated to be in excess of \$7.3M.<sup>25</sup> The estimate of the proposed cost in the draft contract for fixed management fees and routine O & M, does not appear out of line with prior contracts. Of course, the final proposed cost will not be known until GPA obtains bid proposals through the solicitation.

In response to a PUC Request for Information to GPA, Assistant General Manager of Operations Jennifer Sablan has provided: (1) a Summary of PMC Costs, including Fixed Management Fees, Routine O & M, and CIP Project Costs for FY2020-2024; (2) a Summary of CIP Projects and Costs; and (3) Recommended CIP Projects for Contract Years 2026-2030.<sup>26</sup> Said materials are attached hereto collectively as Exhibit "A".

### **RECOMMENDATION**

Based upon the documentation provided by GPA, the ALJ recommends that the PUC approve GPA's request to solicit a Performance Management Contract for GPA's

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<sup>23</sup> GPA Petition at p. 3.

<sup>24</sup> Id.

<sup>25</sup> PUC Order, GPA Docket 21-03, PMC Contract Extension for the Combustion Turbine Plants, dated November 30, 2020, at p. 7.

<sup>26</sup> Email from GPA Counsel Marianne Woloschuk to PUC ALJ Fred Horecky dated January 22, 2025.

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January 24, 2025


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Combustion Turbine Power Plants. The Combustion Turbines are a necessary part of the IWPS to meet peak load and to maintain an adequate power reserve.

A proposed Order approving such recommendations is submitted herewith for the consideration of the Commissioners.

Respectfully submitted this 24<sup>th</sup> day of January, 2025.

Sincerely,

  
Frederick J. Horecky  
Chief Administrative Law Judge

# Performance Management Contract for Dededo CT, Macheche CT, and Yigo CT

Progress Summary

FY 2020 – FY 2024



# Current Contract

- Amendment I
  - Executed 5-Year Extension commencing March 1, 2021
  - Expires February 28, 2026
- Amendment II
  - Extended PMC services to GPA fast track diesel plants and Piti 7 CT plant to restore generation capacity
  - Effective December 13, 2023 thru end of extension term

# Overview & Highlights

- CT operations are critical to support peak and baseload outages
- Projects at the beginning of this period were being impacted from supply chains and shipping affected by the COVID pandemic
- Plague of Cabras boiler tube leaks and the loss of Yigo CT due to typhoon damage put strain on other generating units in the summer of 2023
- Dededo CT was the only unit that served load throughout Typhoon Mawar feeding Andersen Airforce Base through underground lines
- Through aid of PMC several Tenjo Vista units were repaired and operational after several years of being down
- Continued and increased operations of the CTs require major maintenance activities more frequently

# Critical Work Completed

- Yigo CT Engine Exchange (FY2021)
- Yigo CT Hot Section Exchange & Generator Overhaul (FY2024)
- Macheche CT Hot Section Exchange (FY2024)
- Typhoon Mawar Repairs (FY2024) – various repairs at all CTs and Yigo CT Generator Rotor Repair
- Turbocharger repairs for Tenjo & Talofofa Plants (FY 2024)
- Control System Upgrade at MDI Plant (FY 2024)

# Unit Availability

- CTs maintained high availability unless down for maintenance or derated to protect unit due to wear-down of turbine blades from extensive operations

EAf (%)	FY2020	FY2021	FY2022	FY2023	FY20
DCT1	80	94	95	90	93
DCT2	96	98	98	93	78
MCT	99	98	93	93	90
Vigo CT	93	66	96	64	36

# Summary of Costs

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL
Fixed O&M	\$ 696,815	\$ 744,736	\$ 787,602	\$ 811,230	\$ 835,567	\$ 3,875,950
Routine O&M	\$ 544,294	\$ 581,749	\$ 699,907	\$ 632,704	\$ 652,617	\$ 3,111,271
CT1	\$ 122,481	\$ 113,246	\$ 107,656	\$ 110,910	\$ 114,231	\$ 568,524
CT2	\$ 122,467	\$ 113,235	\$ 107,658	\$ 110,910	\$ 142,199	\$ 596,469
Macheche	\$ 136,055	\$ 177,088	\$ 226,032	\$ 189,816	\$ 167,800	\$ 896,791
Yigo	\$ 163,291	\$ 178,181	\$ 258,561	\$ 221,068	\$ 228,386	\$ 1,049,487
CIP	\$ 115,932	\$ 6,085,897	\$ 470,931	\$ 907,046	\$ 8,772,854	\$ 16,352,661
CT	\$ 115,932	\$ 6,085,897	\$ 470,931	\$ 907,046	\$ 6,607,553	\$ 14,187,360
Diesels	\$ -	\$ -	\$ -	\$ -	\$ 1,946,414	\$ 1,946,414
Piti 7	\$ -	\$ -	\$ -	\$ -	\$ 218,887	\$ 218,887
<b>TOTAL</b>	<b>\$ 1,357,041</b>	<b>\$ 7,412,382</b>	<b>\$ 1,958,440</b>	<b>\$ 2,350,980</b>	<b>\$ 10,261,038</b>	<b>\$ 23,339,882</b>

# Recommended Future Projects

- Dededo CT 1 & 2 Major Turbine Inspection / Overhauls
- Dededo CT 1 & 2 Generator Overhaul
- Upgrade of control systems at all plants
- Exhaust duct repairs at all plants
- Upgrade of fire fighting systems

# Future Operations

- The CTs will continue to be critical reserve units to support peak and planned and forced outages of baseload units
- GPA must maintain adequate reserve capacity to support Ukudu steam turbine outages

Summary of CT PMC Costs

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL
Fixed O&M	\$ 696,815	\$ 744,736	\$ 787,602	\$ 811,230	\$ 835,567	\$ 3,875,950
Routine O&M	\$ 544,294	\$ 581,749	\$ 699,907	\$ 632,704	\$ 652,617	\$ 3,111,271
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Diesels	\$ -	\$ -	\$ -	\$ -	\$ 1,946,414	\$ 1,946,414
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<b>TOTAL</b>	<b>\$ 1,357,041</b>	<b>\$ 7,412,382</b>	<b>\$ 1,958,440</b>	<b>\$ 2,350,980</b>	<b>\$ 10,261,038</b>	<b>\$ 23,339,882</b>



Summary of CT PMC Projects

	Project Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Grand Total
<b>CT CIPs</b>							
1	DI#1 Turbine Fuel Divider with Flow Sensor Upgrade	\$ 25,937					\$ 25,937
2	Design and Rebuild of Yigo Combustion Turbine Water Treatment Facility Building	\$ 89,995					\$ 89,995
3	Piping and Fitting Upgrades and Replacements for Yigo Combustion Turbine Water Treatment System and Fuel Oil Purifier Sealing		\$ 25,250				\$ 25,250
4	Battery System Upgrade at Yigo Combustion Turbine.		\$ 32,421				\$ 32,421
5	Battery System Upgrade at Macheche Combustion Turbine		\$ 35,053				\$ 35,053
6	Ratchet Assembly		\$ 37,169				\$ 37,169
7	To perform NGR and CT Upgrade for Yigo Combustion Turbine's Generator		\$ 51,053				\$ 51,053
8	Macheche Combustion Turbine Exhaust Gas Temperature T5.4 Thermocouple Upgrade		\$ 57,196				\$ 57,196
9	Dededo Combustion Turbine No. 1 (DCT#1) Generator Cooling System Improvement Total Project		\$ 121,355				\$ 121,355
10	Dededo Combustion Turbine No. 2 - Generator Cooling System Improvement Project		\$ 121,795				\$ 121,795
11	Design and Rebuild of Yigo Combustion Turbine Water Treatment Facility Building		\$ 132,948				\$ 132,948
12	Water Injection Pump/Gearbox/Coupling/Motor update of Dededo Combustion Turbines		\$ 203,242				\$ 203,242
13	Supply and Installation of upgraded RO+EDI System for Yigo Combustion Turbine		\$ 233,130				\$ 233,130
14	LM2500 SAC Engine Exchange for Yigo Combustion Turbines		\$ 5,035,285				\$ 5,035,285
15	Upgrade of Vacuum Circuit Breaker for Yigo Combustion Turbine Main Generator System			\$ 33,279			\$ 33,279
16	Macheche Combustion Turbine Fire Protection/Fire Suppression Systems Assess/Inspection, Repair and Certify			\$ 37,189			\$ 37,189
17	Yigo Combustion Turbine Fire Protection/Fire Suppression System Assess/Inspection, Repair, Certify			\$ 41,632			\$ 41,632
18	Macheche Service and Instrument Air Compressor Skid Replace Project			\$ 53,942			\$ 53,942
19	Overhaul Work and Refurbishment for Atomizing Air Compressor for Turbine DCT 1 & 2			\$ 63,635			\$ 63,635
20	Dededo Combustion Turbine Unit No. 1 Exhaust Duct (Engine Room) Upgrade			\$ 75,971			\$ 75,971
21	Yigo Combustion Turbine (YCT) Air Intake and Exhaust Duct and Gas Turbine - Generator Room Upgrade Works			\$ 165,283			\$ 165,283
22	Design and Rebuild of Yigo Combustion Turbine Water Treatment Facility Building				\$ 18,987		\$ 18,987
23	Dededo Combustion Turbine Unit No. 1 Exhaust Duct (Engine Room) Upgrade				\$ 69,508		\$ 69,508
24	Dededo Combustion Turbine No. #1 Purchases of Key Parts (Fuel Bypass Valve)				\$ 84,727		\$ 84,727
25	Dededo Combustion Turbine Water Treatment System Control System Upgrade				\$ 98,589		\$ 98,589
26	Yigo Combustion Turbine Fire Engine Pump System Upgrade				\$ 114,241		\$ 114,241
27	Turbine Fuel Treatment Motor Control Center #3 and Water Treatment Motor Control Center #2 Upgrade at Yigo Combustion Turbine				\$ 137,953		\$ 137,953
28	Main Generator Overhaul for Yigo Combustion Turbine				\$ 383,040		\$ 383,040
29	Dededo Combustion Turbine Unit No. 1 Exhaust Duct (Engine Room) Upgrade					\$ 47,984	\$ 47,984
30	Dededo CT 1&2 Turbine System Motor Control Center MCC1					\$ 265,438	\$ 265,438
31	Main Generator Overhaul for Yigo Combustion Turbine					\$ 535,055	\$ 535,055
32	LM2500 Hot Section Exchange and Dry Combustor Rotable for Yigo Combustion Turbine					\$ 2,049,120	\$ 2,049,120
33	Turbine Exchange for Macheche Combustion Turbine					\$ 2,212,774	\$ 2,212,774
	<b>Subtotal - CT CIPs</b>	<b>\$ 115,932</b>	<b>\$ 6,085,897</b>	<b>\$ 470,931</b>	<b>\$ 907,046</b>	<b>\$ 5,110,371</b>	<b>\$ 12,690,177</b>
<b>CT Typhoon Mawar Repairs</b>							
34	Typhoon Mawar - Emergency Repairs on Generator Rotor, Exciter Stator and Permanent Magnet Generator (PMG) at Yigo Combustion Turbine					\$ 1,372,207	\$ 1,372,207
35	Typhoon Mawar Damages at Combustion Turbines					\$ 124,976	\$ 124,976
	<b>Subtotal - Typhoon Repairs</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,497,183</b>	<b>\$ 1,497,183</b>
	<b>TOTAL CT CIP Projects</b>	<b>\$ 115,932</b>	<b>\$ 6,085,897</b>	<b>\$ 470,931</b>	<b>\$ 907,046</b>	<b>\$ 6,607,553</b>	<b>\$ 14,187,360</b>
<b>Diesel CIP Projects</b>							
36	Control System Upgrade for MDI					\$ 875,925	\$ 875,925
37	Fuel Injectors for Tenjo Vista Diesel Power Plant					\$ 72,006	\$ 72,006
38	Governor Actuator for Tenjo and MDI Plant					\$ 71,972	\$ 71,972
39	Turbocharger Assembly Assessment & Overhaul (8 sets) - Tenjo & Talofolo					\$ 926,511	\$ 926,511
	<b>Subtotal - Diesel CIPs</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,946,414</b>	<b>\$ 1,946,414</b>
<b>PHI 7 CIP Projects</b>							
40	Crankshaft and Pulley for Starting Diesel Engine for PHI 7 Power Plant					\$ 218,887	\$ 218,887
	<b>Subtotal - PHI 7 CIPs</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 218,887</b>	<b>\$ 218,887</b>
	<b>GRAND TOTAL - ALL CIP PROJECTS</b>	<b>\$ 115,932</b>	<b>\$ 6,085,897</b>	<b>\$ 470,931</b>	<b>\$ 907,046</b>	<b>\$ 8,772,854</b>	<b>\$ 16,352,661</b>

Recommended CIPs/PIPs for Contract Year 2026-2030

Item No	site	DESCRIPTION	CY 2026	CY 2027	CY 2028	CY 2029	CY 2030	JUSTIFICATION
1	DCT	DCT Frame5 Turbine purchases of Instrument key parts	150,000.00		150,000.00		150,000.00	The Unit type ( FRAME5) had aged KEY components and they will out of service by original vendor, so they needs to replace for the new one that will be including spare parts. Upgrade to new type so we will to get that for keep unit running stable in the future.
2	DCT	DCT#1 /#2 TRICONIX SYSTEM OVERHAUL and operation HMI PC, engineer SERVER upgrade Schneider control systems recently installed in year 2017	200,000.00					The Schneider control system recently installed in year 2017, the operation personal computer and engineer server that should be expired their lifetime, they should be overhaul to exchange major assemblies or change whole sets of the server to extend availability lifetime of the control system.
3	DCT1	DCT 1 exhaust duct internal insulation repair		95,000.00				The internal insulation material in the exhaust duct has been severely eroded, resulting
4	DCT1	Replacement of air intake filter cotton group		60,000.00		60,000.00		Must be replaced after two years of use.
5	DCT1	DCT-1 Main Generator major overhaul		850,000.00				The main generator has been operated over 25 years. It should be carried on a major overhaul including overhaul inspections, repairs, and parts replacement base on operation and maintenance manual.
6	DCT1	DCT-1 125VDC battery system upgrade			90,000.00			Batteries have been in operation for more than 12 years at end of 2028. The expected life time on DDM Battery is 10 to 15 years base on operation and maintenance manual.
7	DCT 1	DCT 1 Frame5 Turbine Major Inspection (MI)				7,000,000.00		The estimated operating time will reach the hour limit specified in the maintenance manual.
8	DCT2	DCT 2 exhaust duct internal insulation repair		95,000.00				The internal insulation material in the exhaust duct has been severely eroded, resulting
9	DCT2	De-Idle Combustion Turbine Unit 2 Exhaust Duct (Bangna Room) Upgrade		300,000.00				The exterior paint of the smokestack is severely damaged and needs to be repainted
10	DCT2	Replacement of air intake filter cotton group		60,000.00		60,000.00		Must be replaced after two years of use.
11	DCT	DCT#1,#2 water injection system upgrade			150,000.00			The DCT water injection Unit had aged KBY components and they will out of service by original vendor, so they needs to replace for the new one that will be including spare parts. Upgrade to new type so we will to get that for keep unit running stable in the future.
12	DCT 2	DCT-2 125VDC battery system upgrade			90,000.00			Batteries have been in operation for more than 12 years at end of 2028. The expected life time on DDM Battery is 10 to 15 years base on operation and maintenance manual.
13	DCT 2	DCT-2 Main Generator minor overhaul			400,000.00			The main generator has been operated over 10 years since last overhaul in 2018. It should be carried on a minor overhaul including minor overhaul inspections, repairs, and parts replacement base on operation and maintenance manual.
14	DCT2	DCT 2 Frame5 Turbine Major Inspection (MI)				7,000,000.00		The estimated operating time will reach the hour limit specified in the maintenance manual.
15	DCT 2	DCT-2 13.8KV switchgear panel and 480V PCP panel upgrade					450,000.00	The critical components "circuit breaker" of switchgear panel are obsolete and no spare parts in storage at CT.
16	MCT	MCT RO & EDI system Carbon filter tank renew	50,000.00					The equipment is old, resulting in decreased efficiency and functionality.
17	MCT	Insulation of the MCT turbine body.	65,000.00					The insulation material has deteriorated and is damaged, resulting in reduced thermal insulation effectiveness.

Recommended CIPs/PIPs for Contract Year 2026-2030

Item No	Site	DESCRIPTION	CV 2026	CV 2027	CV 2028	CV 2029	CV 2030	JUSTIFICATION
18	MCT	Replacement of air intake filter cotton group	60,000.00		60,000.00		60,000.00	Must be replaced after two years of use.
19	MCT	Replace MCT Control system with new upgrade control system for LM 2500 and integrated SSCP AVR, TCP, GCP, VMS, BOP control system and remote control capability from other site.	900,000.00					Replace Legacy Control system (Woodward SO1) with new upgrade control system as the system is over 30 years old and control cards/ parts are no longer supported by GE and Woodward. This project will improve the turbine and generator high-performance speed control (groups) and additions of automatic frequency control (synchronous) and remote control. The integrated control systems with HMI will use the network for transfer control data. Additionally, the SSCP, AVR, BOP and VMS systems and components require replacements with upgraded parts and will be integrated with the numerical control system for compatibility with the new TCP and GCP control systems of LM2500. The MCT remote control capability is included in this project. The critical components of Black Start Diesel Generator are obsolete including the control PLC and main circuit breaker. Currently, there are some difficulties in starting, the instability of the hydraulic speed governor and PLC control, also main circuit breaker failure on remote operation. Therefore, the Black Start Diesel Generator must be upgraded and restore to MCT FACP panel malfunction and the components are obsolete on the market, for power plant safety, it needs to upgrade as soon as possible. The internal insulation material in the exhaust duct has been severely eroded, resulting in reduced MCT, YCT CO2 system control panel is old and components are obsolete on the market, so the system need to upgrade to keep it can service in ability. The Unit type (LM2500) and had aged KEY components and they will out of service by original vendor, so they needs to replace for the new one that will be including spare parts. Upgrade to new type so we will to get that for keep unit running stable in the future.
20	MCT	MCT Black Start control system and power panel upgrade	220,000.00					
21	MCT	MCT FACP PANEL UPGRADE	150,000.00					
22	MCT	MCT exhaust duct repair and paint	95,000.00					
23	MCT & YCT	MCT, YCT LM2500 CO2 firefighting system upgrade	260,000.00					
24	MCT & YCT	MCT, MCT LM2500 Turbine purchases of Instrument key parts	200,000.00			200,000.00		
25	MCT	MCT Expansion Jolot update			45,000.00			There is minor damage, and the material has deteriorated.
26	MCT	MCT Main Generator minor overhaul				400,000.00		The main generator has been operated over 10 years since last overhaul in 2018. It should be carried on a minor overhaul including minor overhaul inspections, repairs, and parts replacement base on operation and maintenance manual.
27	MCT	MCT turbine exchange					6,000,000.00	The estimated operating time will reach the hour limit specified in the maintenance manual.
28	YCT	YCT RO & EDI system Carbon filter tank renew	50,000.00					The equipment is old, resulting in decreased efficiency and functionality.
29	YCT	YCT exhaust duct repair and paint	95,000.00					The internal insulation material in the exhaust duct has been severely eroded, resulting in reduced
30	YCT	Insulation of the YCT turbine body.	65,000.00					The insulation material has deteriorated and is damaged, resulting in reduced thermal insulation effectiveness.
31	YCT	YCT Main a turbine generator roof	95,000.00					Long-term roof leaks can cause damage to the unit.
32	YCT	Replacement of air intake filter cotton group	60,000.00		60,000.00		60,000.00	Must be replaced after two years of use.

Recommended CIPs/PIPs for Contract Year 2026-2030

Item No.	Site	DESCRIPTION	CY 2026	CY 2027	CY 2028	CY 2029	CY 2030	JUSTIFICATION
33	YCT	YCT Hot section					2,700,000.00	The estimated operating time will reach the hour limit specified in the maintenance manual.
		TOTAL CIPs/PIPs BUDGET	1,810,000.00	2,015,000.00	895,000.00	14,720,000.00	9,270,000.00	